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South African Phlebotomine sand-flies (Diptera: Psychodidae)

by

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SYNOPSIS

The species of Phlebotominae known in Southern Africa are listed; many of them are peculiar to this region and about half fall in the subgenus *Sintonius*. A new species, *Sergentomyia* (*Sintonius*) *briani* n.sp., is described and figured, and a description with figures is given of a species of *Sergentomyia* represented by males only and not determinable. Records are given for *Sergentomyia squamipleuris* (Newstead) and *S. bedfordi* (Newstead).

The sand-flies on which this study is based have been collected by Mr. B. R. Stuckenberg of the Natal Museum, to whom I am grateful for the opportunity of examining them.

Specimens are described below according to the system used by Lewis (1957). When anterior 'vertical' teeth are present in the cibarium, they are designated 'fore teeth' in distinction from the 'hind' 'horizontal' teeth normally present in *Sergentomyia*. The length of one ascoid on antennal segment 4 was measured along an axis parallel to the segment. The length of palpal segments 1 + 2 was measured from the junction of segment 1 with the maxilla. Schmidt and Schmidt (1963) suggested that, for calculating palpal ratios, the length of each segment should be expressed to three decimal places. In the present work three places were used for several ratios used in calculating averages. With regard to wing veins, R_1 apex is to be regarded as positive unless indicated as negative in the ratio of R_1 apex to R_2. The 'knob' of the spermatheca (Fairchild and Hertig, 1951; Theodor, 1965) is the part into which the hair-like gland-ducts lead.

De Meillon (1955) reviewed the species known from southern Africa, and the list is now as follows, modified according to recent taxonomic changes, and including the species reported in the present paper.

Phlebotomus

(*Synphlebotomus*) *rossi* De Meillon & Lavoipierre

Sergentomyia	
(*Sergentomyia*)	*bedfordi* (Newstead)
,,	*schoutedeni* (Adler, Theodor & Parrot)
,,	sp. (*yusafi* (Sinton)?)
,,	*schwetzi* (A., T. & P.)
(*Parrotomyia*)	*africana magna* (Sinton)
,,	,, *meridiana* (De M. & Lav.)
,,	*rhodesiensis* (De M. & Hardy)
(—)	sp. A
(*Grassomyia*)	*squamipleuris squamipleuris* (Newstead)
(*Sintonius*)	*briani* sp. n.
,,	*caffrarica* (De M. & Lav., 1944)
,,	*capensis* (De M., 1955)
,,	*meeseri* (De M. & Hardy, 1955)
,,	*meilloni* (Sinton)
,,	*namibensis* (De M. & Hardy)
,,	*transvaalensis* (Sinton)

Notable features include the number, about half, of species peculiar to the area, and the importance of *Sintonius*. De Meillon considered that many species awaited discovery, and his opinion is supported by the abundance of sand-flies at comparable latitudes in the northern hemisphere. Furthermore, increasing knowledge of the relation of phlebotomine sand-flies to zoonoses has stimulated out-door collecting and revealed sand-flies in parts of the world where they were formerly little known, or unknown. It is therefore appropriate to mention two productive methods of collecting. A simple sticky trap, briefly described by Lewis (1967), is effective in many countries. It is a piece of paper stuck in a cleft stick, smeared with castor oil, and placed about dusk near animal burrows or other cavities. Another method is to drive small flies from crevices in caves and catch them in a fine-mesh net.

Sergentomyia (*Sergentomyia*) *bedfordi* (Newstead)

The two available males are treated as this species, but their identity will be more certain if females can be found. This and the next species are widespread sand-flies of the Ethiopian region.

Specimens examined.—Natal, Pietermaritzburg, 8.xii.1962, at light in house in Scottsville suburb, 2 ♂.

Sergentomyia (*Grassomyia*) *squamipleuris* (Newstead)

Specimens examined.—Natal, Zululand, Ingwavuma District, Ndumu Game Reserve camp, xii, 1964, about 32° 17′ E., 26° 55′ S., 1 ♂; a dry locality in hot sandy coastal lowland.

Sergentomyia sp. A. Text-figs. 1-4

♂. Cibarium with about 12 inconspicuous back teeth, and some front teeth which may be scarcely visible; chitinous arch faint and pigment patch absent. Pharynx with thin walls and ill-defined scale-like ridges. Labrum 0.16 (0.15-0.17) mm long; crest high and tapering slightly to an obliquely-truncated tip. Antennal segment 3 is 0.15 (0.14-0.17) mm long, 0.8 (0.7-0.8) length of 4 + 5, 0.9 (0.9-1.0) length of labrum; one ascoid on segments 4-15, that on 4 being 0.17 (0.15-0.19) length of segment, and shorter than that on 5. Wing length 1.65 (1.57-1.67) mm, width 0.39 (0.36-0.41) mm. Abdominal tergite 6 slightly shorter and narrower than 5. Tergites 2-6 without conspicuous large hair sockets. Genital filament about 3.2 times length of pump. Aedeagus curved slightly upward and tapering to a pale rounded tip. Paramere with beak-like end. Dististyle with 2 terminal spines, 2 subterminal spines, and seta at about 0.7.

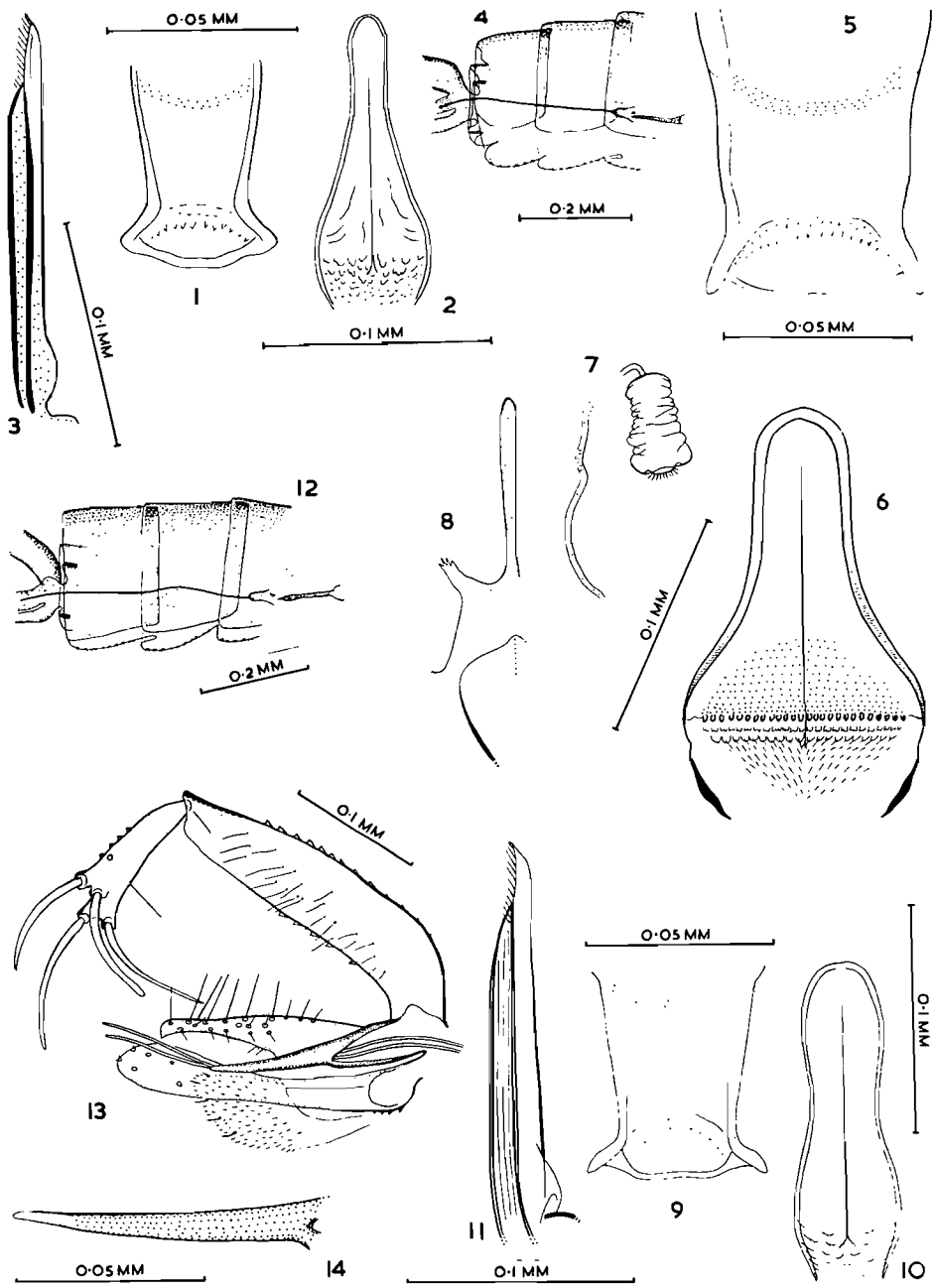
This species can be identified when females are available.

Specimens examined.—Eastern Cape Province, Plettenberg Bay area, Groot Rivier Pass, about 33° 58′ S., 23° 33′ E., 11.x.1959, under loose bark on tree in indigenous forest, 6 ♂.

Sergentomyia (Sintonius) briani n.sp. Text-figs. 5-14

♀. A dark brown fly with narrow wings. Cibarium with scarcely visible teeth; in one specimen they are seen as a posteriorly-concave row of about 14 pointed teeth, with an irregular row of similar teeth in front of them; chitinous arch scarcely visible; pigment patch absent. Pharynx with thick walls and, in anterior half, nearly parallel sides; in posterior half it widens to more than twice anterior width and is dark at the centre and along the thickened posterior lateral walls; armature comprising a straight row of about 24 stout teeth across the greatest width of the pharynx, a row of pale teeth, each with several short points, in front of first row, and numerous fine long spicules behind the rows. Labrum 0.21 (0.20-0.21) mm long. Antennal segment 3 is 0.20 (0.18-0.21) mm long, same length (0.9-1.0) as 4 + 5, same length (0.9-1.0) as labrum; 2 ascoids on segments 4-15, that on 4 being 0.4 (0.39-0.44) length of segment; 1 papilla on 3 and 4. Palpal formula 1-2-3-4-5; ratio 10: 9.8: 11: 22. Peg sensillae in a cluster, from 0.24 to 0.37 length of segment 3. Wing length 1.87 (1.81-2.07) mm, width 0.45 (0.41-0.48) mm; R_1 is 0.8 (0.7-1.0) length of R_{2+3}; R_1 apex is 0.3 (0.3-0.6) length of R_2. Each of abdominal tergites 2-6 with about 5-10 large hair-sockets near hind margin. Spermatheca with about 8 irregular annulations, very thin walls except at ends, very broad head, and a narrow duct. Side of furca with anterior process.

♂. Cibarium narrow; teeth and chitinous arch scarcely visible; pigment patch absent. Pharynx with scale-like ridges. Labrum 0.17 (0.16-0.17) mm long; crest relatively pale, reaching its greatest height opposite the ends of the side pieces, and tapering to the apex where there are some minute serrations. Antennal segment 3 is 0.21 (0.21-0.22) mm long, 0.9 (0.8-0.9) length of 4 + 5, 1.3 (1.2-1.4) times length of labrum; 1 ascoid on segments 4-15, that on 4 being 0.3 (0.2-0.4) length of segment. Wing length 1.68 (1.64-1.74) mm, width 0.36 (0.35-0.39) mm. Some large hair sockets on abdominal tergites 2-5. Tergite 6 distinctly longer and wider than 5, with recumbent setae. Genital filament about 3.6



Figs. 1-14. 1-4, *Sergentomyia* sp. A, ♂: 1, cibarium; 2, pharynx; 3, labrum; 4, abdomina segments 4-8. 5-14, *S. briani*, ♀: 5, cibarium; 6, pharynx; 7, spermatheca; 8, furca. ♂: 9, cibarium; 10, pharynx; 11, labrum; 12, abdominal segments 4-8; 13, terminalia; 14, part of aedeagus.

times length of pump. Aedeagus curving slightly upward and tapering to a very narrow rounded tip (visible when filaments and other structures are removed). Paramere with beak-like end. Dististyle with 2 apical spines, 2 subapical spines, and a seta at about 0.86.

Ascoids were not seen on antennal segment 3 of the specimens examined, and are apparently absent or vestigial.

S. briani is related to *S. capensis*, and the female of *S. briani* differs from it in the nature of the cibarial and pharyngeal teeth. The male of *S. capensis* is unknown; that of *S. briani* would run to couplet 36 in the key of Abonnenc and Minter (1965), differing from the species indicated in the absence of a pigment patch.

S. capensis was placed but its describer in *Sintonius*, a group treated by Theodor (1958) as a subgenus of *Sergentomyia*. De Meillon pointed out that the pharynx of *S. capensis* showed this species to be related to *S. caffrarica* and *S. meeseri*. Two describers of *S. caffrarica* considered that it was related to three species of *Sintonius*, but pointed out that the pigment patch, pharynx and spermathecae of *S. caffrarica* separated it from other Ethiopian sand-flies. *S. briani*, *S. caffrarica* and *S. meeseri* should perhaps be regarded as a group within *Sintonius*, although their pharyngeal structure does not accord with Theodor's description of the subgenus. Furthermore, the cibarial armature of *S. briani* is quite different from that of other species of *Sintonius*, and the spermatheca is atypical.

The narrowness and weak armature of the cibarium of female *S. briani* are in contrast to its pharynx. The scarcely visible cibarial teeth, like those of the Indian *S. bailyi* (Sinton), are very unusual in the genus *Sergentomyia*.

Specimens examined.—Holotype ♀, Natal, Pietermaritzburg, Town Bush, v.1962, from herbage near forest, 3,500 feet. Paratypes: Natal, Gillitts, Impolweni Valley, about 29° 47′ S., 30° 48′ E., 29.xi.1962, 2♀ 7♂, some of many present in hole in bank and in crevices of tree trunk 5-8 feet above ground; Eastern Cape Province, Port St. Johns District, about 31° 35′ S., 29° 32′ E., 16-17.x.1959, from low herbage in forest, 1 ♀; Natal, Oribi Gorge Reserve, Umzimkulwana Valley, about 30° 38′ S., 30° 20′ E., 21-28.xi.1960, on table in house, late afternoon, 1♀. Holotype and 2 ♀ and 4♂ paratypes to be deposited in Natal Museum; 2 ♀ and 3 ♂ paratypes in British Museum (Natural History).

This species is named after Mr. Brian R. Stuckenberg.

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